

AD-A175 712 COMBAT HISTORY ANALYSIS STUDY EFFORT (CHASE) DATA
ENHANCEMENT STUDY (CODES (U) DATA MEMORY SYSTEMS INC
FAIRFAX VA HERO DIV B R BADER ET AL 31 JAN 86
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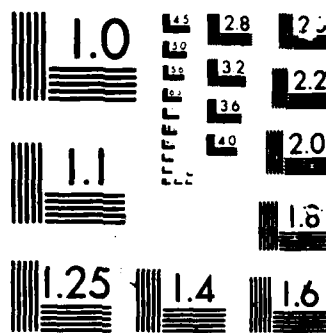
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Historical Evaluation & Research Organization

Report Number 129

COMBAT HISTORY ANALYSIS STUDY EFFORT (CHASE)

DATA ENHANCEMENT STUDY (CDES)

Vol I: Introductory Materials and Bibliography

Final Report
31 January 1986

Prepared for the
US Army Concepts Analysis Agency
Bethesda, Maryland

Contract No. MDA903-85-C-0252

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This final report contains enhanced data and corrections of omissions, inconsistencies, and ambiguities for a 1984 study performed by HERO for USACAA entitled "ANALYSIS OF FACTORS THAT HAVE INFLUENCED OUTCOMES OF BATTLES AND WARS: A DATA BASE OF BATTLES AND ENGAGEMENTS" (Contract No. MDA903-82C-0363). It has been performed in order to make the data base contained in the 1984 study applicable for use in U.S. Army studies and analyses, concept formulations, and wargaming. It contains enhanced and		

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20. corrected data from the original data base, newly developed data, and responses to specific questions and problems formulated by USACAA in its transcription of the data base to computerized format. *This* Volume I contains introductory materials, Volumes II-V, the main body of the report, contain the results of nine tasks developed by USACAA.
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Vol. I: Introductory Materials and Bibliography

Final Report

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INTRODUCTION

In September 1984 the Historical Evaluation and Research Organization (HERO) completed work on a comprehensive data base of 601 battles and engagements for the US Army Concepts Analysis Agency (CAA) under contract MDA 903-82-C-0363. In accordance with the requirements of the contract, the data base provided information characterizing the nature and outcome of selected battles and engagements detailed to the level of individual combat examples.

This original data base is documented in the report "Analysis of Factors That Have Influenced the Outcomes of Battles and Wars: A Data Base of Battles and Engagements," CAA-SR-84-6, September 1984, in six volumes as follows:

<u>Vol.</u>	<u>Title</u>	<u>DTIC No.</u>
I	Main Report	B086 797L
II	HERO Summary and Introductory Materials, and Wars From 1600 Through 1800	B087 718L
III	Wars From 1805 Through 1900	B087 719L
IV	Wars From 1904-1940	B087 720L
V	World War II, 1939-1945; Campaigns in North Africa, Italy, and Western Europe	B087 721L
VI	World War II, 1939-1945; Campaigns in France, 1940; On the Eastern Front; and of the War Against Japan. The 1967, 1968, and 1973 Arab-Israeli Wars	B087 722L

The Combat History Analysis Study Effort (CHASE), initiated by CAA in August 1984, is intended to include an examination of

the 601-engagement data base for summary quantitative relationships which will be useful for a variety of US Army studies and analyses, concept formulation, and wargames applications. While CHASE was still in its early stages, it was determined that the original HERO data base needed extension, amplification, and enhancement to be as useful as possible for CHASE and for other analyses. This led in June of 1984 to the CHASE Data Enhancement Study (CDES) Contract (MDA903-85-C-0252). Nine tasks called for by the CDES Contract to enhance the data base are addressed in this report. Brief descriptions of the tasks are given here. For complete descriptions, consult the individual introductions to each task in the various volumes of the study. All holders of the original data base are urged to review carefully this new report, and to compare it with the original data base in order to make all changes recorded herein.

Task 1: Analysis of Data Base Problem Reports

Task 1 addresses missing, suspect, or ambiguous data items and terminology in a list compiled by CAA as a result of its transcription of the data base into computerized format.

Task 2: Clarification of the Total Engaged Personnel Strength

Task 2 clarifies the listings of personnel strength presented for each engagement in the data base, i.e., in terms of whether the indicated strength is start strength, average strength, or total strength. In performing this task HERO has also provided, where available, newly developed data on reinforcements and replacements and average or total strength.

Task 3: Clarification of the Basis for Assigning Victory

Task 3 clarifies whether HERO determined success or victory in an engagement, on the basis of (a) decisive (i.e., clear-cut) resolution of combat, or (b) mission accomplishment.

Task 4: Refinement of the Duration Data

Task 4 refines duration data for selected engagements. Regardless of the actual length in time of an engagement, the smallest unit of time employed as a time descriptor in the original data base was the day. This was considered by CAA to be too coarse for desired statistical analyses. Refined duration data, where provided in this task, is given in terms of tenths of an hour.

Task 5: Clarification of the Width of Front Data

In the original data base only the attacker's width of front was recorded. In Task 5 HERO shows the defender's width of front (where different from that of the attacker) in the engagements for which this data is available.

Task 6: Clarification of the Defender Posture Descriptions

Task 6 clarifies the descriptor used for defender posture in those engagements for which two posture levels were entered, by showing in each case whether these represent an average or a combination posture.

Task 7: Identification of the Quality of Strength and Loss Data

Task 7 provides HERO's estimates of the relative reliability of personnel strength data and casualty data for each engagement. The estimates are expressed as percentages of the data values.

Task 8: Development of Strength and Attrition Histories for
Selected Battles

Task 8 contains a detailed strength and attrition history for one engagement, showing personnel strengths and casualties at specific times during the engagement, and over intermediate time periods, for both sides in the engagement. In performance of this task, HERO prepared a list of candidate engagements for strength and attrition histories with the estimated amount of effort required to perform them.

Task 9: Assistance in Eliminating Unwanted Redundancies

In Task 9, HERO briefly comments on CAA's efforts to eliminate redundancy in the data base.

Work on the nine tasks of this report is presented in five volumes. Volume I contains introductory material including lists of engagements and abbreviations and bibliographic sources. Volume II contains the results of Task 1; Volume III contains the results of Tasks 2 and 3; Volume IV contains the results of Tasks 4 and 5; and Volume 5 contains the results of Tasks 6, 7, 8, and 9.

On pages 2 and 3 of Volume II of the original data base, the following statements were presented:

In reviewing what we have done in preparing this report, it is obvious to the authors that the value of the work--both historically and for purposes of military analysis--can be substantially enhanced in the future....

Possibly most important, there is a need for the most thorough, rigorous, and critical review of the contents of this work as herein presented....

We know we have--within strict limitations in time--produced a work of which we can be proud. We are equally aware that the combination of those time strictures and our own limitations has resulted in a work that is less than perfect. We hope it can be perfected, and thus we welcome all responsible comments, suggestions, and criticisms.

HERO is grateful to CAA for giving us the opportunity to start on a critical review of the data base. We are also grateful to Dr. Robert L. Helmbold of CAA, the Contracting Officer's Representative, for his assistance and suggestions in the performance of the review. It must be noted, however, that there were also limitations in funds and time in the performance of the tasks in this review effort. Within the constraints of these limitations, HERO has completed all work for Tasks 1 through 7 and has partially addressed Tasks 8 and 9 (these two tasks being lowest in priority of importance) in accordance with the work plan which HERO and Dr. Helmbold jointly developed.

During work performed on this report, new data has been developed and judgmental reassessments made for some data entries. All new data and reassessments directly related to the report tasks is presented in this report. For example, improved personnel strength and casualty data is shown on the tables addressing Task 2. Data on distance advanced per day (KPDA) and width of front (WOF) has also been found for many engagements where this data was not presented in the original data base. All holders of the original data base are urged to review carefully this new report, and to compare it with the original data base in order to make all changes recorded herein.

Unfortunately, the noted funding and time limitations have made it impossible to present further changes which we believe are required to improve the data base, but which are not directly related to the nine tasks of this study. These items include some 200 additional consistency problem reports noted in Volumes IV-VI of the original data base, and an estimated 120 more consistency problem reports suspected but not yet identified for Volumes II and III. These inconsistencies affect primarily the Outcome, Combat Forms, and Resolution of Combat sections of the data base (Tables 5 and 7). In addition to the approximately 300 consistency problem reports there are approximately 100 identified or suspected items of missing or erroneous data. These include minor typographical errors in all sections of the data base and improved data for Table 3, Strengths and Combat Outcomes.

Engagement List

The following engagement list is intended to provide users of this report with a reference list identifying each engagement by a number. The identification number appears under ISEQNC on the list. The engagement name is given under the column heading with that title. The engagements are listed in order of their appearance in the original data base. Users of this study may consult the lists of engagements at the beginning of the appropriate volumes of the original data base for information on dates, campaigns, and wars.

Note that on the following list engagements #582-584 are in different order from the CAA computerized data base list. In the original data base, these engagements appear in different sequences on several of the data tables. The sequence used in this report and in the CAA computerized data base is shown below:

Report List

Shallufa II, #582
Suez, #583
Adabiya, #584

CAA Computerized Data Base List

Shallufa II, #582
Suez, #583
Adabiya, #584

Volume II

<u>ISEQNO</u>	<u>Engagement Name</u>	<u>ISEQNO</u>	<u>Engagement Name</u>
1	Nieuport	50	Blenheim
2	White Mountain	51	Ramillies
3	Wimpfen	52	Oudenarde
4	Dessau Bridge	53	Malplaquet
5	Lutter	54	Peterwardein
6	Breitenfeld I	55	Mollwitz
7	The Lech	56	Chotusitz
8	Alte Veste	57	Dettingen
9	Luetzen	58	Fontenoy
10	Noerdlingen I	59	Hohenfriedberg
11	Wittstock	60	Sohr
12	Breitenfeld II	61	Kesselsdorf
13	Rocroi	62	Prestonpans
14	Tuttlingen	63	Culloden
15	Freiburg	64	Lobositz
16	Jankau	65	Prague
17	Mergentheim	66	Plassey
18	Allerheim (Noerdlingen II)	67	Kolin
19	Lens	68	Hastenbeck
20	Edgehill	69	Rossbach
21	Marston Moor	70	Leuthen
22	Tippermuir	71	Crefeld
23	Kilsyth	72	Zorndorf
24	Newbury II	73	Hochkirch
25	Naseby	74	Bergen
26	Preston	75	Minden
27	Dunbar	76	Kunersdorf
28	Worcester	77	Plains of Abraham (Quebec)
29	St. Antoine	78	Maxen
30	The Dunes	79	Warburg
31	The Raab	80	Liegnitz
32	Vienna	81	Torgau
33	Chocim II	82	Bunker Hill
34	Sinsheim	83	Quebec
35	Senef	84	White Plains
36	Enzheim	85	Trenton
37	Turckheim	86	Princeton
38	Fehrbellin	87	Freeman's Farm
39	Sedgemoor	88	Germantown
40	Killiecrankie	89	Bemis Heights
41	Walcourt	90	Monmouth Court House
42	Fleurus	91	Camden
43	The Boyne	92	Cowpens
44	Aughrim	93	Guilford Court House
45	Steenkerke	94	Hobkirk's Hill
46	Neerwinden (Landen)	95	Eutaw Springs
47	Marsaglia	96	Valmy
48	Zenta	97	Jemappes
49	Poltava	98	Neerwinden

<u>ISEQNO</u>	<u>Engagement Name</u>	<u>ISEQNO</u>	<u>Engagement Name</u>
99	Hondschoote	108	Pyramids
100	Wattignies	109	Stockach I
101	Fleurus	110	Mount Tabor
102	Lodi	111	Zurich I
103	Castiglione	112	Novi
104	Neresheim	113	Zurich III
105	Wuerzburg	114	Moeskirch
106	Arcola	115	Marengo
107	Rivoli	116	Hohenlinden

VOLUME III

<u>ISEQNO</u>	<u>Engagement Name</u>	<u>ISEQNO</u>	<u>Engagement Name</u>
117	Austerlitz	167	Magenta
118	Jena	168	Solferino
119	Auerstadt	169	Sadowa (Koeniggraetz)
120	Eylau	170	Custoza II
121	Friedland	171	First Bull Run (First Manassas)
122	Vimeiro		
123	Corunna	172	Wilson's Creek
124	Eckmuehl	173	Belmont
125	Aspern-Essling	174	Mill Springs
126	The Raab	175	Fort Donelson
127	Wagram	176	Pea Ridge
128	Talavera	177	Kernstown
129	Bussaco	178	Shiloh
130	Fuentes de Onoro	179	Front Royal
131	Albuera	180	First Winchester
132	Salamanca	181	Cross Keys
133	Vittoria	182	Port Republic
134	Borodino	183	Seven Pines (Fair Oaks)
135	Luetzen	184	Mechanicsville
136	Bautzen	185	Gaines's Mill
137	Dresden	186	Glendale-Frayser's Farm
138	Leipzig		
139	Hanau	187	Malvern Hill
140	La Rothiere	188	Cedar Mountain
141	Laon	189	Second Bull Run (Second Manassas)
142	Arcis-sur-Aube		
143	Ligny	190	South Mountain
144	Quatre Bras	191	Antietam (Sharpsburg)
145	Waterloo	192	Corinth
146	The Thames	193	Perryville
147	Chippewa	194	Fredericksburg
148	Lundy's Lane	195	Murfreesboro (Stones River)
149	New Orleans		
150	Boyaca	196	Chancellorsville
151	Carabobo	197	Champion's Hill
152	Bombona	198	Brandy Station
153	Pichincha	199	Gettysburg
154	Junin	200	Chickamauga
155	Ayacucho	201	Chattanooga
156	San Jacinto	202	The Wilderness
157	Palo Alto	203	Spotsylvania
158	Resaca de la Palma	204	New Market
159	Buena Vista	205	Cold Harbor
160	Cerro Gordo	206	Kenesaw Mountain
161	Contreras	207	Peachtree Creek
162	Churubusco	208	Atlanta
163	Molino del Rey	209	Petersburg
164	Chapultepec	210	Globe Tavern
165	The Alma	211	Opequon Creek (Third Winchester)
166	Inkerman		

<u>ISEQNO</u>	<u>Engagement Name</u>	<u>ISEQNO</u>	<u>Engagement Name</u>
212	Cedar Creek	227	Orleans
213	Franklin	228	Le Mans
214	Nashville	229	Belfort
215	Bentonville	230	Isandhlwana
216	Dinwiddie Court House & White Oak Road	231	Ulundi
217	Five Forks	232	Majuba Hill
218	Selma	233	Tel el-Kebir
219	Sayler's Creek	234	Omdurman
220	Weissenburg	235	Adowa
221	Froeschwiller (Woerth)	236	Modder River
222	Spichern	237	Magersfontein
223	Mars la Tour	238	Colenso
224	Gravelotte-St. Privat	239	Spion Kop
225	Sedan	240	Paardeberg
226	Coulmiers	241	San Juan and El Caney

Volume IV

<u>ISEQNO</u>	<u>Engagement Name</u>	<u>ISEQNO</u>	<u>Engagement Name</u>
242	The Yalu	290	Neuve Chapelle
243	Telissu	291	Ypres II
244	Liaoyang	292	Festubert
245	The Sha-Ho	293	Loos
246	Sandepu	294	The Winter Battle (Masuria)
247	Mukden	295	Gorlice-Tarnow (Opening Phase Only)
248	Kumanovo	296	First Isonzo
249	Lule' Burgas	297	Second Isonzo
250	Prelip	298	Third Isonzo
251	Monastir	299	Fourth Isonzo
252	Adrianople	300	First Dardanelles Landing
253	Warsaw	301	Suvla Bay
254	The Nieman	302	Kut-el-Amara
255	Guadalajara-Brihuega	303	Ctesiphon
256	Changkufeng/Shachao Feng	304	First Somme
257	Hill 52/Shachao Feng	305	Somme, Fourth Army Attack
258	Changkufeng/Hill 52	306	Somme, Ovillers
259	Nomonhan: Opening Engagement	307	Somme, Bazentin Ridge
260	Nomonhan: Soviet Counteroffensive	308	Somme, Flers-Courcelette
261	Suomussalmi	309	Caucasus Winter Offensive
262	Alsace-Lorraine I	310	Lake Narotch
263	Alsace-Lorraine II	311	1916 Brusilov Offensive
264	The Ardennes	312	Fifth Isonzo
265	The Sambre	313	Asiago
266	Mons	314	Trentino Counteroffensive
267	Le Cateau	315	Sixth Isonzo (Gorizia)
268	Guise	316	Arras
269	The Heights of Nancy	317	Aisne II
270	The Ourcq I	318	Messines
271	The Ourcq II	319	Ypres III
272	The Petit Morin	320	Cambrai I
273	The Two Morins	321	Cambrai II
274	The Marshes of St. Gond	322	Tenth Isonzo
275	Vitry le Francois	323	Eleventh Isonzo
276	The Gap of Revigny	324	Caporetto (Twelfth Isonzo)
277	The Aisne	325	Crossing of the Tigris
278	Stalluponen	326	Gaza I
279	Gumbinnen	327	Gaza II
280	Tannenberg	328	Gaza III
281	Masurian Lakes	329	Junction Station
282	Krasnik	330	Second Somme, Phase I (Somme-Peronne)
283	Komarov	331	Second Somme, Phase II (Somme-Montdidier)
284	The Gnila Lipa	332	Lys
285	Rava Russka		
286	Lodz		
287	The Jadar		
288	The Kolubra		
289	Eastern Champagne		

<u>ISEQNO</u>	<u>Engagement Name</u>	<u>ISEQNO</u>	<u>Engagement Name</u>
333	Yvonne and Odette Posi- tions	360	Berzy le Sec
334	Chemin des Dames	361	Buzancy Ridge
335	Cantigny	362	Picardy, 1918, Phase I
336	Belleau Wood	363	Picardy, 1918, Phase II
337	Hill 142	364	St. Mihiel
338	West Wood I	365	Lahayville-Bois de Lamarche
339	Bouresches I	366	Meuse-Argonne, Phase I
340	Hill 192	367	Blanc Mont I
341	West Wood II	368	Medeah Farm
342	North Wood I, The Hunting Lodge	369	Essen Hook
343	Bouresches II	370	Blanc Mont Ridge
344	North Wood II	371	Sommepey Wood
345	North Wood III	372	Blanc Mont II
346	North Wood IV (Final Assault)	373	Meuse-Argonne, Phase II
347	Vaux	374	Exermont-Montrefagne
348	La Roche Wood East	375	Mayache Ravine
349	La Roche Wood West	376	La Neuville le Comte Ferme
350	Noyon-Montdidier	377	Ferme des Granges- Fleville
351	Champagne-Marne	378	Hill 212
352	Aisne-Marne I	379	Bois de Boyon- Montrefagne
353	Missy aux Bois Ravine	380	Hill 272
354	Breuil	381	Meuse-Argonne, Phase III
355	St. Amand Farm	382	Remilly-Aillicourt
356	Beaurepaire Farm	383	Hill 252-Pont Maugis
357	Cravancon Ferme-Chaudun	384	The Piave
358	Chaudun	385	Megiddo
359	Aisne-Marne II		

Volume V

<u>ISEQNO</u>	<u>Engagement Name</u>	<u>ISEQNO</u>	<u>Engagement Name</u>
386	Alam Halfa	436	Castellonorato
387	El Alamein II	437	Spigno
388	Operation "Lightfoot"	438	Formia
389	Alamein Bridgehead	439	Monte Grande (Rome)
	Expansion	440	Itri-Fondi
390	Operation "Supercharge"	441	Terracina
391	Chouigui Pass	442	Moletta Offensive
392	El Guettar	443	Anzio-Albano Road
393	Sedjenane-Bizerte	444	Anzio Breakout
394	Amphitheater	445	Cisterna
395	Port of Salerno	446	Sezze
396	Sele-Calore Corridor	447	Velletri
397	Battipaglia I	448	Campoleone Station
398	Vietri I	449	Villa Crocetta
399	Tobacco Factory	450	Ardea
400	Battipaglia II	451	Fosso di Campoleone
401	Eboli	452	Lanuvio
402	Vietri II	453	Lariano
403	Grazzanise	454	Via Anziate
404	Caiazzo	455	Valmontone
405	Capua	456	Tarto-Tiber
406	Castel Volturno	457	Il Gioglio Pass
407	Monte Acero	458	St. Lo
408	Triflisco	459	Operation "Goodwood"
409	Dragoni	460	Operation "Cobra"
410	Canal I	461	Mortain
411	Monte Grande (Volturno)	462	Chartres
412	Canal II	463	Melun
413	Francolise	464	Seine River
414	Santa Maria Oliveto	465	Moselle-Metz
415	Monte Camino I	466	Metz
416	Monte Lungo	467	Arracourt
417	Pozzilli	468	Westwall
418	Monte Camino II	469	Schmidt
419	Monte Rotondo	470	Seille-Nied
420	Calabritto	471	Foret de Chateau-Salins
421	Monte Camino III	472	Morhange
422	Monte Maggiore	473	Morhange-Faulquemont
423	Aprilia I	474	Bourgaltroff
424	The Factory	475	Sarre-St. Avold
425	Campoleone	476	Baerendorf I
426	Campoleone Counterattack	477	Baerendorf II
427	Carroceto	478	Burbach-Durstel
428	Moletta River Defense	479	Durstel-Faerbersviller
429	Aprilia II	480	Sarre-Union
430	Factory Counterattack	481	Sarre-Singling
431	Bowling Alley	482	Singling-Bining
432	Moletta River II	483	Sauer River
433	Fioccia	484	St. Vith
434	Santa Maria Infante	485	Bastogne
435	San Martino		

Volume VI

<u>ISEQNO</u>	<u>Engagement Name</u>	<u>ISEQNO</u>	<u>Engagement Name</u>
486	Sedan-Meuse River	522	Advance through
487	Jitra		the Outposts
488	Rovno	523	Tomb Hill-Ouki
489	The Defense of Moscow	524	Skyline Ridge-Rocky Crag
490	Soviet Counteroffensive	525	Kochi Ridge-Onaga I
	at Moscow	526	Kochi Ridge-Onaga II
491	The Pogoreloye	527	Kochi Ridge-Onaga III
	Gorodishche Offensive	528	Japanese Counterattack, 4-5 May
492	Leningrad (Operation	529	Kochi Ridge IV
	"Spark")	530	Shuri Envelopment,
493	The Oboyan-Kursk Axis,		Phase I
	Phase I	531	Japanese Counterattack, 24/25 May
494	Operation "Citadel,"	532	Shuri Envelopment,
	Southern Sector		Phase II
495	The Oboyan-Kursk Axis,	533	Shuri Envelopment,
	Phase II		Phase III
496	The Oboyan-Kursk Axis,	534	Hill 95-I
	Phase III	535	Hill 95-II
497	Prokhorovka	536	Yaeju-Dake
498	Kursk Counteroffensive	537	Hills 153 and 115
	(Southern Sector)	538	Advance from the
499	Belgorod		Beachhead
500	Melitopol	539	Advance to the Shuri
501	Korsun-Shevchenkovskiy		Line Outposts
502	Nikopol Bridgehead	540	Kakazu and Tombstone
503	Sevastopol		Ridges
504	The Berezina River,	541	Nishibaru Ridge-
	Byelorussian		Tanabaru Escarpment
	Offensive	542	Maeda Escarpment
505	The Lvov-Sandomierz	543	Attack on the Shuri
	Offensive		Line's Eastern Flank I
506	Brody, Phase I	544	Attack on the Shuri
507	Brody, Phase II		Line's Eastern Flank II
508	Assault Crossing of the	545	Attack on the Shuri
	Vistula River, Phase I		Line's Eastern Flank III
509	Vistula River Operation,	546	Advance to the Yuza-
	Pulawy, Phase II		Dake/Yaeju-Dake Escarpment
510	Yassy-Kishinev	547	Initial Attack on the
511	Vistula-Oder		Yuza-Dake/Yaeju-
512	East Prussia		Dake Escarpment
513	Ciechanow, Phase I	548	Capture of the Yuza-
514	Ciechanow, Phase II		Dake/Yaeju-Dake
515	Seelow Heights		Escarpment
516	Mutankiang	549	Jenin
517	Tarawa-Betio	550	Jerusalem
518	Iwo Jima, Into the	551	Kabatiya
	Main Defenses	552	Tilfit-Zababida
519	Iwo Jima, Suribachi	553	Nablus
520	Iwo Jima, Final Phase	554	Rafah
521	Advance from the Beach	555	Bir Lahfan

<u>ISEQNO</u>	<u>Engagement Name</u>	<u>ISEQNO</u>	<u>Engagement Name</u>
556	Abu Ageila-Um Katef	578	Deversoir West
557	El Arish	579	Ismailia
558	Jebel Libni	580	Jebel Geneifa
559	Gaza Strip	581	Shallufa I
560	Bir Hassna-Bir Thamada	582	Adabiya
561	Mitla Pass	583	Shallufa II
562	Bir Hamma-Bir Gifgafa	584	Suez
563	Nakhl	585	Kuneitra
564	Bir Gifgafa	586	Ahmadiyeh
565	Tel Fahar-Banias	587	Rafid
566	Rawiyeh	588	Yehudia-El Al
567	Zaoura-Kala	589	Nafekh
568	Kerama	590	Tel Faris
569	Suez Canal Assault-	591	Hushniyah
	North	592	Mount Hermonit
570	Suez Canal Assault-	593	Mount Hermon I
	South	594	Tel Shams
571	Second Army Buildup	595	Tel Shaar
572	Third Army Buildup	596	Tel el Hara
573	Kantara-Firdan	597	Kfar Shams-Tel
574	Egyptian Offensive-		Antar
	North	598	Naba
575	Egyptian Offensive-	599	Arab Counter-
	South		Offensive
576	Deversoir (Chinese	600	Mount Hermon II
	Farm I)	601	Mount Hermon III
577	Deversoir (Chinese		
	Farm II)		

Lists of Abbreviations and Symbols

The following lists of abbreviations and symbols are intended for use with the tables presented in subsequent volumes of this report addressing the specific and general problem reports of this study.

The first list contains abbreviations for the data cells in the seven tables of the original data base. It is based on CAA's coding scheme for the computerized version of the HERO data base, and the definitions found in Volume I of the original data base. Abbreviations from this list are entered under the column heading Data Cell on the tables addressing the specific and general problem reports.

The second list of abbreviations is a copy of pages 19-24 of Volume I of the original data base. It contains abbreviations and symbols used for tabular entries in the original data base and entered under the column headings Change From and Change To on the tables addressing the specific and general problem reports in this study.

Abbreviations for Data Cells

Table 1:

WAR	Name of the war of which the engagement is a part.
NAME	Name of the engagement.
LOCN	Geopolitical area in which the engagement took place.
CAMPGN	Name of the campaign of which the engagement is a part.
DATE	Date(s) of the engagement. In the original data base information entered under "Date(s)" on Table 1 represents the point or period of time at or within which an engagement takes place. For a complete definition see p. 6 of Volume II of the original data base. For a single-day engagement, the date presented represents the day on which combat took place. For a multi-day engagement, the dates are the first and last days of combat i.e., the dates when the engagement is considered to have started and ended.
T	Duration of the engagement. In the original data base, duration was expressed in number of days, with a portion of a day considered a full day. In Task 4 of Volume IV of this study, refined duration data is presented for select engagements in number of hours, rounded off to the nearest tenth of an hour.
WOF	Width of front in kilometers.
NAMA	Designation of the attacker's force.
NAMD	Designation of the defender's force.
COA	Commander of the attacker's force.
COD	Commander of the defender's force.

Table 2:

POSTD 1, 2	Defender's posture category or categories.
TERRA 1, 2	Terrain descriptor(s).
WX 1, 2, 3	Weather, season, and climate descriptor(s).
SURPA	Level of surprise (An "A" indicates that the attacker achieved surprise; a "D" indicates the defender achieved surprise).
AEROA	Air superiority.

Table 3:

XØ	Total attacker personnel strength.
YØ	Total defender personnel strength.
CAVA	Total number of attacker horse-mounted troops.
CAVD	Total number of defender horse-mounted troops.
TANKA	Total number of attacker armored track-laying vehicles mounting a cannon-type weapon.
TANKD	Total number of defender armored track-laying vehicles mounting a cannon-type weapon.
LTA	Total number of light attacker armored track-laying vehicles mounting a cannon-type weapon.
LTD	Total number of light defender armored track-laying vehicles mounting a cannon-type weapon.
MBTA	Total number of medium and heavy attacker armored track-laying vehicles mounting a cannon-type weapon.
MBTD	Total number of medium and heavy defender armored track-laying vehicles mounting a cannon-type weapon.
ARTYA	Total number of attacker artillery pieces.
ARTYD	Total number of defender artillery pieces.

Table 3 (Continued):

FLYA	Total number of attacker direct support air sorties.
FLYD	Total number of defender direct support air sorties.
CX	Total number of attacker battle casualties.
CY	Total number of defender battle casualties.
CTANKA	Total number of attacker armored track-laying vehicles mounting a cannon-type weapon that were destroyed, damaged, or captured.
CTANKD	Total number of defender armored track-laying vehicles mounting a cannon-type weapon that were destroyed, damaged, or captured.
CARTYA	Total number of attacker artillery pieces that were destroyed, damaged, or captured.
CARTYD	Total number of defender artillery pieces that were destroyed, damaged, or captured.
CFLYA	Total number of attacker combat aircraft lost while flying direct air support sorties.
CFLYD	Total number of defender combat aircraft lost while flying direct air support sorties.

Table 4:

CEA	Adjudged relative advantage in combat effectiveness.
LEADA	Adjudged relative advantage in leadership.
TRNGA	Adjudged relative advantage in training.
MORALA	Adjudged relative advantage in morale.
LOGSA	Adjudged relative advantage in logistics.
MOMNTA	Adjudged relative advantage in momentum.
INTELA	Adjudged relative advantage in military intelligence.
TECHA	Adjudged relative advantage in technology.
INITA	Adjudged relative advantage in initiative.

Table 5:

WINA	Achievement of victory or success.
KPDA	Average attacker rate of advance in kilometers per day.
ACHA	Attacker's mission accomplishment score.
ACHD	Defender's mission accomplishment score.

Table 6:

QUALA	Adjudged effect of force quality on outcome.
RESA	Adjudged effect of reserves on outcome.
MOBILA	Adjudged effect of mobility on outcome.
AIRA	Adjudged effect of air superiority on outcome.
FPREPA	Adjudged effect of force preponderance on outcome.
WXA	Adjudged effect of weather on outcome.
TERPA	Adjudged effect of terrain and/or roads on outcome.
LEAIAA	Adjudged effect of leadership on outcome.
PLANA	Adjudged effect of planning on outcome.
SURPA	Adjudged effect of surprise on outcome.
MANA	Adjudged effect of maneuver or mass on a narrow front on outcome.
LOGSAA	Adjudged effect of logistics on outcome.
FORTSA	Adjudged effect of fortifications on outcome.
DEEPA	Adjudged effect of depth on outcome.

Table 7:

PRIA	Attacker's primary form of deployment and maneuver in his plan of attack.
PRID	Defender's primary form of deployment and maneuver in his scheme of defense.
SECA	Attacker's secondary form of deployment and maneuver in his plan of attack.
SECD	Defender's secondary form of deployment and maneuver in his scheme of defense.
Success	Achievement of victory or success (Identical to WINA from Table 5).
RESOA	Schematic representation of attacker's resolution or outcome of combat.
RESOD	Schematic representation of defender's resolution or outcome of combat.

Abbreviations and Symbols Used for Matrix Entries

Table 1: Identification

The symbols used in this table are as follows:

National or Other Forces, Units, and Ranks

Am	American
Amph	Amphibious
Armd	Armored
Aus	Austrian
Bav	Bavarian
Bde	Brigade
Bn	Battalion
Boer	Boer
Boh	Bohemian
Br	British
Br Exped Force	British Expeditionary Force
Brig	Brigadier
Brig Gen	Brigadier General
Bul	Bulgarian
Cav	Cavalry
Col	Colonel
Cov	Scots Covenanter
CCA	Combat Command A
CCB	Combat Command B
CCR	Combat Command Reserve
CG	Commanding General
Co	Company
Cos	Companies
Cr Pr	Crown Prince
CS	Confederate States [of America]
Cumb'd	Cumberland
Dan	Danish

Det	Detachment
Dk	Duke
Du	Dutch
Eg	Egyptian
elms	Elements
Eng	English
Eth	Ethiopian
Fld	Field
FM	Field Marshal
Ft Rgt	Foot Regiment
Fr	French
Ger	German
Gds	Guards
Gr	Grenadier
Han	Hanoverian
Imp	Imperialist
Ind Inf Bn	Independent Infantry Battalion (Japanese)
Is	Israeli
It	Italian
Jap	Japanese
Jgr	Jaeger
Jor	Jordanian
KG	Kampfgruppe [German combat team]
Mam	Mameluke
Mar	Marine
Mech	Mechanized
Mes	Mesopotamian
Mex	Mexican
MG	Major General
Para	Paratroop
Parl	Parliament
PG	Panzer Grenadier
Pied	Piedmontese (Piedmont-Savoy or Piedmont-Sardinia)
PLA	Palestine Liberation Army

Pol	Polish
Port	Portuguese
Pr	Prussian
Prot	Protestant
Reb	Rebel
Res	Reserve
Rgt	Regiment
Rom	Romanian
Roy	Royalist
Russ	Russian
Sax	Saxon
Serb	Serbian
Sp	Spanish
Sp Rep	Spanish Republican
Spec Estab Rgt	Special Established Regiment (Japanese)
Sov	Soviet
Sw	Swedish
Syr	Syrian
TF	Task Force
Tk	Turk
U/I	Unidentified [unit]
US	United States
VG	Volks Grenadier
Vol	Volunteers
(+)	Reinforced
(-)	Elements, part, or a portion of a unit

Table 2. Operational and Environmental Variables

Defender Posture:

HD - Hasty defense
PD - Prepared defense
FD - Fortified defense
WDL - Withdrawal
Del - Delay

Terrain:

RD - Rolling, desert
RgB - Rugged, bare
RgM - Rugged, mixed
RgW - Rugged, heavily wooded
RB - Rolling, bare
RM - Rolling, mixed
RW - Rolling, heavily wooded
FB - Flat, bare
FM - Flat, mixed
FW - Flat, heavily wooded
FD - Flat, desert
R Dunes - Rolling dunes
U - Urban or built-up area
M - Marsh or swamp

Weather:

DSH - Dry, sunshine, hot
DST - Dry, sunshine, temperate
DSC - Dry, sunshine, cold
DOH - Dry, overcast, hot
DOT - Dry, overcast, temperate
DOC - Dry, overcast, cold
WLH - Wet, light, hot
WLT - Wet, light, temperate
WLC - Wet, light, cold
WHH - Wet, heavy, hot
WHT - Wet, heavy, temperate
WHC - Wet, heavy, cold

Season:

<u>Months</u>	<u>Northern Hemisphere</u>	<u>Southern Hemisphere</u>
March, April, May	Spring	Fall
June, July, August	Summer	Winter
September, October, November	Fall	Spring
December, January, February	Winter	Summer

Season Codes

SpT - Spring, temperate
ST - Summer, temperate
FT - Fall, temperate
WT - Winter, temperate
SpTr - Spring, tropical
STr - Summer, tropical
FTr - Fall, tropical
WTr - Winter, tropical
SpD - Spring, desert
SD - Summer, desert
FD - Fall, desert
WD - Winter, desert

Surprise

Y: Surprise achieved.
N: Surprise did not influence outcome of battle.
x: Symbol showing which side achieved surprise.

Table 4. Intangible Factors

C: Comparable for both sides
N: Not a Factor
x: Advantage
0: Disadvantage

Table 5. Outcome

x: Designates successful side
N: Negligible advance

Table 6. Factors affecting Outcome

Same as for Table 4, with the following additions:

x: Advantage decisively affecting outcome
0: Disadvantage decisively affecting outcome

Table 7. Combat Forms and Resolution

Main Attack plan and Scheme of Defense:

F: Frontal attack
E: Single envelopment
EE: Double envelopment
FE: Feint, demonstration, or holding attack
D: Defensive plan
D/O: Defensive-offensive plan
(LF) Left flank
(RF) Right flank
(LR) Left flank and/or rear
(RR) Right flank and/or rear
P: Penetration
RivC: River crossing
--: No secondary attack

Success: Indicated by an "x"

Resolution:

S: Stalemate
R: Repulse
P: Penetration
B: Breakthrough
WD: Withdrew
WDL: Withdrew with serious loss
A: Annihilated
Ps: Pursued

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